

ABSTRACT OF THE DISCLOSURE

Microwave apparatus for measuring the blood flow rate in a patient's blood vessel includes an intravascular catheter having proximal and distal ends and containing an inner coaxial cable forming a first antenna and an outer cable coaxial with the inner cable and forming a second antenna, the first antenna extending axially beyond the second antenna a selected distance. The apparatus also includes a control unit including a microwave transmitter, a microwave receiver and a processor controlling the transmitter and receiver. A diplexer is connected between the first and second antenna and the control unit to couple signals from the transmitter to the second antenna but not to the receiver and to couple signals from the first antenna to the receiver but not to the transmitter. The transmitter transmits microwave pulses to the first antenna which heat blood around that antenna. When the heated blood volume flows to the second antenna this is detected at the receiver which produces a detect signal. The processor measures the time interval between each pulse a subsequent detect signal and divides that time interval into the axial distance between the two antennas to compute the flow rate.